This is an archive page and is no longer maintained.
Some of this information may be out of date.

Math Archives - Calculus Resources On-line

Welcome to the Calculus Resources On-line area of the Mathematics Archives. This area contains information and links to numerous Internet resources, which could be used for teaching and learning of calculus. If you would like to suggest adding information to this area, or have comments or questions, please contact Przemyslaw Bogacki, the calculus moderator. Here is the contents of the Calculus Resources On-line area:

- **What's** NEW page, including announcements of workshops, conferences, etc.
- **Initiatives, Projects and Programs**
  - main listing, alphabetized by institution's name (pilot sites are listed under the original developer institution)
  - index by country and state
  - index by platform
- **Articles, Posters, Discussions**
- **Software vendors and other platform-specific sites**
- **Publisher sites**
- **Other listings of calculus resources**

Mathematics Archives software collection contains numerous shareware and freeware programs useful for teaching and learning of calculus. In addition to the "calculus" directories in the Mac and Windows/MS-DOS areas, interesting programs may be found elsewhere (e.g., in the directories "Advanced Calculus", "Graphing Programs", etc.). Various other areas of the Math Archives also include links and materials relevant to calculus, e.g. Topics in Mathematics. They can all be reached through the Math Archives main page.

Initiatives, Projects and Programs

These are alphabetized by institution's name (pilot sites are listed under the original developer institution). Additionally, listings by country and state and by platform are available.

Appalachian State University, *Business Calculus*

A new Business Calculus course has been developed with the focus on business problems which can be efficiently resolved by the appropriate use of mathematics and technology working hand-in-hand. Two texts have been developed: one uses Derive and spreadsheets; the other uses the TI-85 or TI-82. The Web site contains information about the project and the texts. Contact Dona Alejandro (ALEJANDRODF@APPSTATE.EDU) or Bob Richardson (RICHARDSONRL@APPSTATE.EDU).

Carleton University

This web site, maintained by the Carleton University Math & Stat Department, features interactive tests for first-year calculus students. Contact Angelo Mingarelli (amingare@math.carleton.ca).

Cornell University

The Math Department Instructional Computing Lab maintains pages dedicated to multivariate calculus. Contact Allen Back (back@math.cornell.edu).
Also see the home page for An Instructor's Archive for Projects-Based Calculus at Cornell.

Duke University

The Connected Curriculum Project is a coordinated effort to create interactive learning environments for a wide range of mathematics and mathematically-based applications (also see Montana State University CCP pages.)
The Duke component of CCP is the successor to Project CALC. Contact Lawrence Moore (lang@math.duke.edu) or David Smith (das@math.duke.edu).

Pilot Sites

Bowdoin College

Mathematica labs produced for the Project CALC are available at the FTP site. Funded by NSF. Contact William H. Barker (barker@bowdoin.edu).

Five Colleges, *Calculus in Context*

The Web page, maintained at the Smith College Department of Mathematics site, contains information about the project. Contact James Callahan (callahan@math.smith.edu).

Florida Atlantic University

An example of a calculus Electronic Workbook, using the Scientific WorkPlace software, can be viewed online at the Departmental web site.

Georgia Institute of Technology

Various resources, including Maple worksheets, have been created for first- and second-year calculus. These pages are maintained on the School of Mathematics site.

Harvard University, *Calculus Consortium*

The Consortium (funded by NSF in 1989 and 1993) is developing and disseminating an innovative core calculus curriculum intended to be practical and attractive to a multitude of institutions. Information about the project can be found at the WWW site. Contact Herman "Suds" Sudholz (calculus@math.harvard.edu).

Heriot-Watt University, *CALM Project*

The Web server contains a description of the CALM Project for Computer Aided Learning in Mathematics, which built a computerized tutorial system to enhance the teaching of calculus.

Imperial College, London, *Mathematics Education Technology Research at Imperial College (formerly: Transitional Mathematics Project)*

Self-study modules (Mathematica notebooks) preparing students for college math courses. More information available at the WWW site. Contact Phillip Kent (p.kent@ic.ac.uk).

Indiana University of Pennsylvania, *Interactive Learning in Calculus and Differential Equations with Applications*

Mathematica notebooks have been developed to enable science students to actively learn calculus and differential equations with guided discovery and exploration. The notebooks and more information about the project can be accessed at the WWW site. Contact H. Edward Donley (hedonley@grove.iup.edu).

Ithaca College, *Calculus: An Active Approach with Projects*

The web site contains information about the project and about the book that was written in conjunction with it. Contact the Calculus Group (calculus@ithaca.edu).

Massachusetts Institute of Technology, *World Web Math*

Under this project, "hypertextbooks" in various areas of mathematics are created. Sections on calculus and vector calculus are available. Contact Joy Jennifer Nicholson (jjnichol@mit.edu).

Michigan Technological University, *Calculus with Technology*

Information about the Calculus with Technology sequence, and Mathematica notebooks used in those courses are available at this Web site.

Montana State University, *Connected Curriculum Project*

A World Wide Web-based curriculum development project using the Internet, the TI-CBL, computer algebra systems, and Java to create a very active learning environment emphasizing the connections among disciplines and between the university, the schools, and the workplace. More information is available at the project's Web site (also see Duke University CCP pages.) . Contact Frank Wattenberg (frankw@math.montana.edu).

North Carolina State University, *Full-Scale Calculus Revitalization and Evaluation Project*

An experience-based, application-driven, two-year calculus sequence is being developed. Calculus with Maple site is maintained by the Math Department. This project is funded by NSF. Contact Joe A. Marlin (marlin@ncsuvm.ncsu.edu).

Oklahoma State University

The reports contained on the OSU Calculus Reform Page summarize research performed at OSU comparing calculus courses taught using various (reformed and traditional) texts. Also, interesting information, materials and links to other sites can be found on the OSU Mathematics Education Center home page.

Old Dominion University, *Computer-based Calculus Project*

A collection of computer laboratories and class activities developed for the freshman calculus sequence. Uses Mathcad and Maple V for Windows. Information and materials available at the WWW site include a preliminary edition of Laboratory Manual in Adobe PDF format.
Also available: examples of calculus animations (with over 60 animations) as well as interactive tutorials and tests.
Contact Przemyslaw Bogacki (bogacki@math.odu.edu).

Oregon State University, *Calculus Quest*

Web-based calculus courses, available at Oregon State University. Contact William A. Bogley (bogley@math.orst.edu) or Robby Robson (robby@math.orst.edu).

Penn State University, *Technology Classroom*

A sample of graphical calculus demonstrations designed by Douglas N. Arnold (dna@math.psu.edu).

Purdue University, *Calculus, Concepts, Computers and Cooperative Learning*

In this funded by NSF project, students are learning the geometric aspects of calculus using computer graphics and are learning the mathematical concepts via a mathematical programming language. Some information about the project can be found on its WWW site. A related project *Assessment and Evaluation in Terms of Dissemination Goals* was also funded by NSF. Contact David.M.Mathews (David.M.Mathews@cmich.edu).

Rensselaer Polytechnic Institute, *Project Links*

A cooperative effort between mathematicians, engineers and scientists to develop educational materials that link mathematical topics with applications in engineering and science. The primary product of this effort is a set of interactive, web-based learning modules. See the web pages maintained on the Department of Mathematical Sciences site.

Rose-Hulman Institute of Technology

The *Development Site for Complex, Technology-Based Problems in Calculus* project, funded by NSF, involves development and dissemination of calculus problems based on applications in science and engineering. The problems can be accessed at the WWW site. Various formats, including Mathematica notebooks, are supported. Contact Brian J. Winkel (winkel@nextwork.rose-hulman.edu).

Saint Louis University

The Web site of the Department of Mathematics and Computer Science, Saint Louis University, contains Maple worksheets developed for Calculus. Contact Mike May (maymk@sluaxa.slu.edu).

Stanford University

Information about calculus courses can be found on the Mathematics Department site.

State University of New York at Stony Brook

Sample materials from the four terms of Calculus are available on the Web pages at the Mathematics Department, SUNY at Stony Brook. Contact Tony Philips (tony@math.sunysb.edu).

University of Cincinnati, *Online exercises*

Automatically generated and computer-graded exercises administered through the Web site. Includes calculus and differential equations exercises. Contact Wlodzimierz Bryc (bryc@ucbeh.san.uc.edu).

University of Delaware

Various course-related information, and online Maple tutorial are available in the course material area of the Mathematical Sciences Department web site. Contact Peter Monk (monk@math.udel.edu).

University of Illinois at Urbana-Champaign, *Calculus & Mathematica*

This WWW site contains information about the Calculus&Mathematica; project. Lessons (in Mathematica notebook format) can be downloaded for the Macintosh, Windows, NeXT or X Windows environments. Contact Jerry Uhl (juhl@ncsa.uiuc.edu).

Pilot Site

University of Pittsburgh

University of Leeds, *Transmath*

Transmath is a computer-based mathematics tutor designed to strengthen and consolidate the basic mathematical knowledge of students commencing numerate degree courses. The software runs under Windows and is hypertext based. While some exercises rely on the Mathematica kernel, Transmath can also be used effectively without linking to the Mathematica kernel. For more information, contact Simon Maunder (simon@amsta.leeds.ac.uk).

University of Massachusetts Dartmouth, *SimCalc*

SimCalc: Simulations for Calculus Learning is a project to build and test a series of software simulations and curriculum materials designed to support learning of the underlying ideas of calculus by mainstream students in grades 3-12.

University of Michigan, *Michigan Calculus*

The Michigan Calculus Program Web site contains information about the program, and various related materials (including the student guide, a summary of evaluation of the program, and info on the gateway tests).

University of Tennessee, Knoxville, *Visual Calculus*

A collection of modules which can be used in the study or teaching of calculus. Includes interactive modules using MathView, Java and JavaScript. Contact Larry Husch (husch@math.utk.edu).

University of Toronto - Scarborough College

The home page for the first year calculus course, contains lecture notes, assignments, solutions, tests and exams as well as programs for graphing calculators and links to other pertinent sites. *(Note: Adobe Acrobat Reader is required to access some of the items.)* Contact R.-O. Buchweitz (ragnar@math.utoronto.ca)

University of Washington, *Minority Science and Engineering Program*

The MSEP resource library site contains information about the program, as well as materials, in LaTEX and PostScript formats, used during the MSEP workshop. Contact: Dave Prince (kdp@u.washington.edu).

Vanderbilt University, *The MathServ Project*

This Web site allows the user to interactively perform various operations, e.g., graph functions, determine antiderivatives, etc. Users provide input through HTML forms and the resulting output is generated by Mathematica running on the server. The site is operated by the Department of Mathematics of Vanderbilt University. Contact Philip Crooke (pscrooke@math.vanderbilt.edu).

Go to the top of the **Calculus Resources On-Line** page or to the main **Mathematics Archives** page.

Articles, Posters, Discussions

Calculus Reform Discussion List

discussion list devoted to the reform of curriculum and pedagogy for calculus and elementary linear algebra, including differential equations. The CALC-REFORM archive are maintained by the Math Forum

International Conference on Technology in Collegiate Mathematics (ICTCM)

The ICTCM conference, sponsored by Addison-Wesley, has established Electronic Proceedings which include the contributed papers as well as abstracts of the poster presentations. Several papers deal with calculus topics. All the abstracts are fully searchable, therefore, calculus-related items can be found by using an appropriate search keyword.

Articles and other items maintained on individuals' home pages

- On the University of New Hampshire Math Department Web site, the home page of **Kelly Black** includes the "Putting Constraints in Optimization" paper, submitted to the MAA's The College Mathematics Journal.
- Samples of writing assignments and other materials are available from **Annalisa Crannell** (Franklin & Marshall College).
- Karl's Calculus Tutor covers differential calculus as well as some integral calculus topics. Includes a discussion forum.
- On-line presentation on Trigonometric Integrals has been developed by **David Hart** (Indiana University).
- Numerous calculus resources are maintained by **Matthias Kawski** (Math Dept, Arizona State University). Includes a great Java applet: Vector Field Analyzer.
- Michael Kelley's Calculus-Help.com (formerly AP Calculus Home Page). Among other features, this site offers answers to any middle or high school math questions - questions are answered by students in Mr. Kelley's Calculus class.
- The home page of **Tommy Ratliff** (Math & CS Dept, Wheaton College) contains Writing Assignments in Calculus.
- The Web server maintained by **Carlos Rodr�guez** (Dept. of Math and Stat, State University of New York at Albany) contains pages dedicated to Multivariate Calculus With Maple.
- The Appetizers and Lessons For Mathematics and Reason site by **Alan Selby** contains several sections related to calculus.
- The e-Calculus on-line tutorials in the PDF format are available at the home page of **D. P. Story** (Department of Mathematical Sciences, The University of Akron).

Software vendors and other platform-specific sites

While these sites are related to (and frequently, maintained by) commercial entities, many of them carry items that can be downloaded free of charge

MathSoft

Web site contains information, documents and programs related to MathCad.

The REDUCE Computer Algebra System

Web site offers a variety of items of interest to a REDUCE package user (including an on-line help). Several REDUCE add-on packages are available for download, including some related to calculus.

Soft Warehouse - acquired by Texas Instruments

Web site maintains information and links related to the DERIVE software.

Waterloo Maple Software

WWW site contains a variety of information, materials and links useful to users of Maple software.

WebPrimitives, *calculus@internet*

The calculus@internet is a laboratory curriculum web-based text for first and second year university and college mathematics students. Features include automated answer-checking server-side scripts which grade student work completed in a CAS, and animations.
This project is a part of the Calculus Internet Resource Library, a metatext of static, dynamic, and interactive resources delivered via the World Wide Web.

Wolfram Research

The WWW server contains numerous Mathematica-related items.
The INTEGRATOR, powered by Mathematica, allows you to use your browser to specify the integrand, and view the resulting antiderivative.

Shareware and Freeware

- MatheAss - Mathematical Assistant shareware program from Germany. Contact Bernd Schultheiss (matheass@t-online.de).

More shareware and freeware.

Web-based mathematics software

- LiveMath - a plug-in for Netscape/Internet Explorer allows the authors to create interactive live mathematics that may be remanipulated by the reader.
- QuickMath - an automated service for solving various math problems (e.g., differentiate, integrate, graph functions).

Publisher sites

Addison-Wesley

The WWW site contains various materials and information related to calculus.

Brooks/Cole

Houghton Mifflin

The Internet Calculus site features editable graphs, animations, and interactive explotations for Maple, Mathcad, Mathematica and Derive.

Wiley

The Wiley WWW site includes information on the calculus textbooks.

Other listings of calculus resources

Oklahoma State University

has a Mathematics Education Projects Page at its Mathematics Education Center WWW site.

Math Forum

has been acquired by Drexel University. The forum is intended to be an online community of teachers, students, researchers, parents, educators, and citizens at all levels who have an interest in math and math education. Includes a large calculus area. featuring classroom materials, software, projects, and public discussions.

Open Directory Project

maintains a calculus page.

Go to the

- **top** of this page
- **Calculus Resources On-Line**
  - Index by **computational platform**
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- **Mathematics Archives** main page.